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(54) Device for dispensing
medicaments

(57) A device by which powdered medicaments can be orally or nasally administered to a patient comprises a body shell (1) defining a portion of a chamber (2). A nozzle or mouthpiece (3) is located at the forward end of the body shell. The body shell is open at the rear end. A sleeve (7) is fitted on the outside of the rear end portion of the body shell (1) and is rotatable and

axially movable with respect to it. The sleeve has a rear wall (8) which closes the open rear end of the chamber (2). A capsule retaining means (11) extends through the rear wall (8) of the sleeve into the chamber. The capsule retaining means has an external entry opening for a capsule at the rear of the sleeve. An abutment (13) is fixed inside the chamber (2) in such a position with respect to the retaining means (11) that a capsule retained in the retaining means and projecting from it into the chamber will engage the abutment when the sleeve is rotated with respect to the body shell. This separates the projecting portion of the capsule from the remainder of the capsule. A grid or guard (4) prevents the separated portion of the capsule from passing through the nozzle or mouthpiece (3). An air inlet opening (14) extends through the rear wall of the sleeve into the chamber (2).

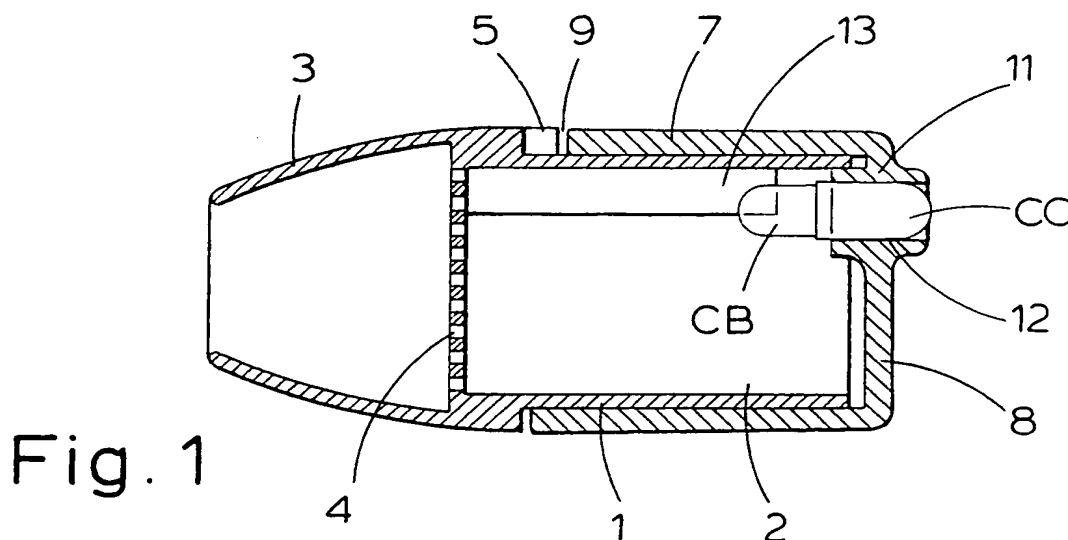
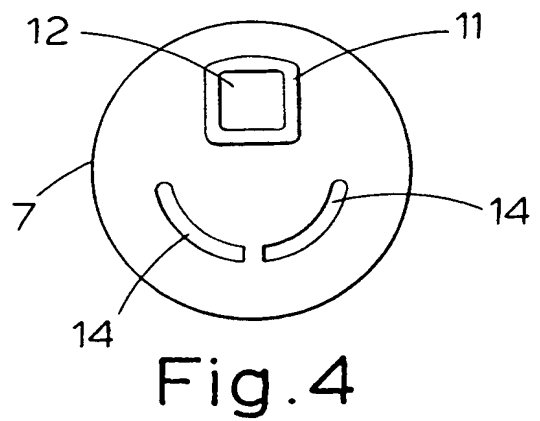
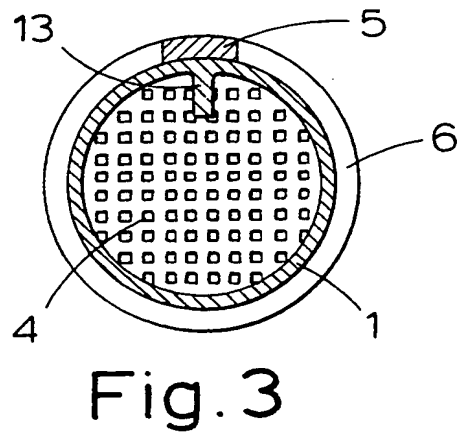
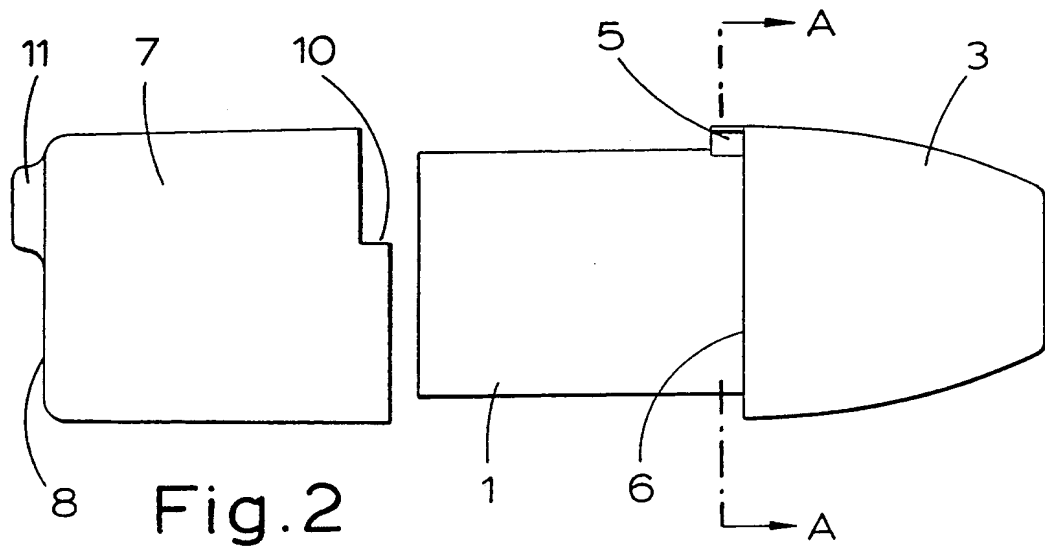
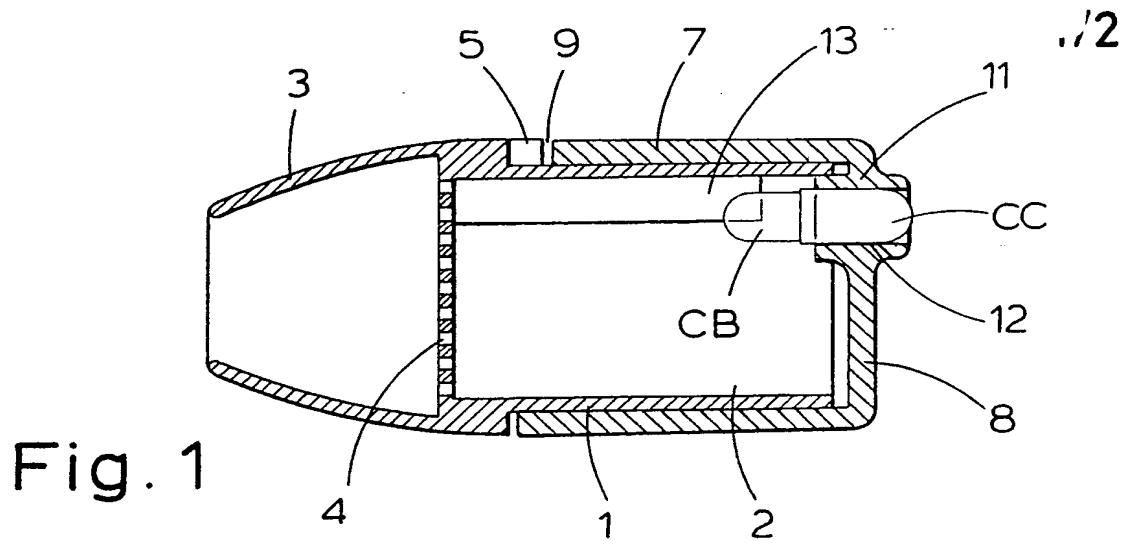


Fig. 1



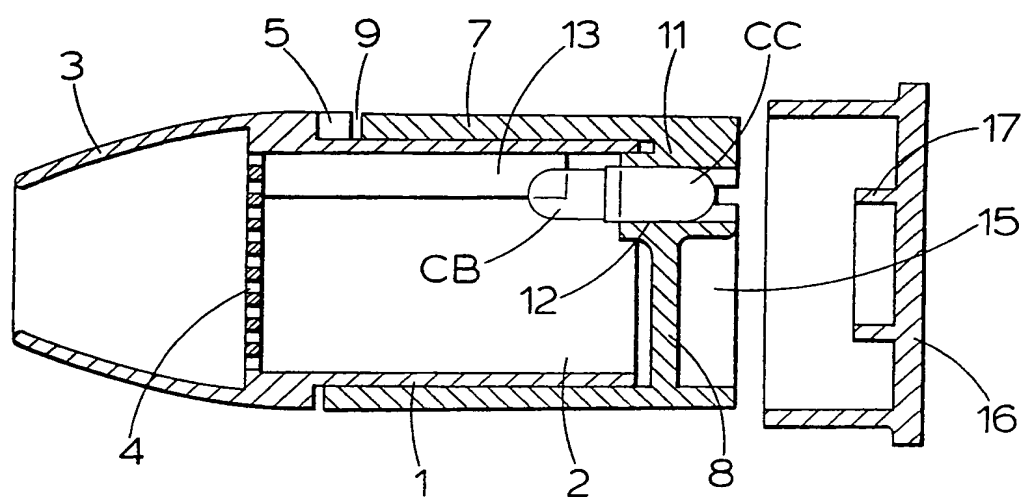


Fig. 5

SPECIFICATION

Device for dispensing medicaments

5 This invention relates to inhalation devices by which powdered medicaments can be orally or nasally administered to a patient.

It is well known to administer powdered medicaments to the lung bronchioles of a patient by means of inhalation devices having mouthpieces which enable the medicament to be inhaled through the mouth of the patient. The "mouthpiece" may if desired, be modified so that it is possible to inhale through a nostril of the patient. The medicament in such cases is supplied in gelatine capsules which are inserted in the device and opened in some suitable way after which inhalation through the mouthpiece will cause the powdered medicament to be released from the capsule and pass into the patient.

10 Capsules containing such medicaments are generally of gelatine and of elongated "torpedo" shape and are constructed in two parts, one of which (called the capsule body) is partly enclosed within the other (called the capsule cap). The contacting portions of the two capsule parts are often provided with grooves and/or ribs which have the effect of "locking" the two capsule parts together. The inhalation devices for use with such capsules normally have a chamber arranged to receive a capsule containing the medicament. An air inlet aperture, or a plurality of such apertures, lead into the chamber in a generally transversal direction and air from the chamber can be inhaled through a nozzle. The air inlet aperture or apertures is/are so arranged that the air flow caused by inhalation through the nozzle will cause the contents of an opened capsule within the chamber to be released and withdrawn through the nozzle.

According to the present invention, there is provided a device comprising a body shell defining a portion of a chamber which has a nozzle at a forward end and which is open at the rear end, a sleeve fitted on the outside of the body shell and rotatable with respect to it and having a rear wall closing the open rear end of the chamber, a capsule retaining means extending through the said rear wall of the sleeve into the chamber and having an external entry opening for a capsule at the rear of the sleeve, an abutment fixed inside the chamber in such a position with respect to the capsule retaining means that a capsule retained in the retaining means and projecting from it into the chamber will engage the abutment when the sleeve is rotated with respect to the body shell thereby to separate the projecting portion of the capsule from the remainder of the capsule, a guard for preventing the separated portion of the capsule from passing through the nozzle and an air inlet opening extending through the said rear wall of the sleeve into the chamber. A stop may be provided to limit the rotation of the sleeve with respect to the body shell.

An embodiment of the invention is illustrated in the accompanying schematic drawings in which:

Figure 1 is a sectional elevation of a device according to the invention,

Figure 2 is an exploded elevation,

Figure 3 is a rear view of the device,

Figure 4 is a section on the line A-A of Figure 2, and

70 Figure 5 is a view similar to Fig 1 illustrating a modification.

In the illustrated embodiment of the invention, an inhalation device is conveniently, but not essentially of a plastics material. The device comprises a cylindrical body shell 1, the interior of which defines a portion of a cylindrical capsule-receiving chamber 2. Secured to one end of the body shell, herein considered to be the forward end, is a nozzle or mouthpiece 3. A perforated guard 4, which defines the front end of the chamber 2, is fixed inside the body shell 1 and prevents portions of a capsule inside the chamber 2 being withdrawn through the mouthpiece 3 when a patient inhales. An abutment 5 serving as a stop for a purpose hereinafter to be described, is located on the outside of the body shell 1. This stop or abutment 5 projects to the rear of a shoulder 6 extending around the body shell 1 at the rear of the mouthpiece 3. The rear end of the body shell 1 is open.

90 A cylindrical sleeve 7 is fitted on the rear end portion of the body shell 1. The sleeve is both rotatable and axially slidable on the body shell 1. The sleeve has a rear end wall 8 which closes the open rear end of the body shell 1 and thus of the chamber 2. The sleeve 7 has a recessed forward end, the recess being formed by a part cylindrical extension of the sleeve. The sleeve 7 may be slid off the rear end portion of the body shell 1 to provide access to the interior of the chamber 2, but when the device is in use by a patient, the forward or recessed end of the sleeve abuts against the shoulder 6 at the rear end of the mouthpiece thereby to define a slot 9 in which the stop 5 is located. The ends of the recess in the forward end of the sleeve form abutments 10 against which the stop 5 can engage when the sleeve 7 is rotated in one direction or other with respect to the body shell so that rotation of the sleeve 7 is limited.

A capsule retaining means 11 in the form of a tube is arranged at, and extends through, the rear end wall 8 of the sleeve 7. A forward end portion of the retaining means 11 extends into the rear end of the sleeve 7, i.e. into the chamber 2, as clearly shown in Figure 1 of the drawings. The retaining means 11 has a passage 12 which opens at the forward end into the chamber 2 and at the rear end opens externally of the rear wall 8 of the sleeve. A capsule may be entered through the open rear end of this passage and retained in the passage. The retaining means 11 is of such a length that when the sleeve 7 is in its fully forward position on the body shell 1 and a capsule is pushed, preferably body first, into the passage 12, the capsule cap (CC) will be retained in the retaining means and the capsule body (CB) will protrude into the chamber as illustrated in Figure 1. The retaining means 11 may be a separate member fitted into the rear wall 8 of the sleeve 7 or it may be, as illustrated, an integral part of the sleeve 7, i.e. the tube 11 and the sleeve 7 may be a single moulding. As shown in Figure 3, the passage 12 in the retaining means 11 is substantially square in cross-section.

CLAIMS

6. An inhalation device by which powdered
115 medicament can be orally or nasally administered to
a patient substantially as herein described with
reference to the accompanying drawings.

65 In a further modification, the pusher means is not

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